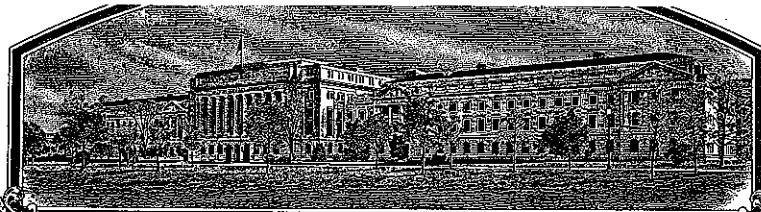


No.

200300306



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Sungenta Seeds, Inc. - Vegetables

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN, GARDEN

'SB4249'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this ninth day of March, in the year two thousand and seven.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

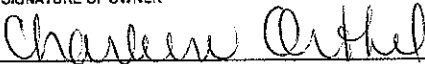
Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Syngenta Seeds, Inc. - Vegetables		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME SB4249	3. VARIETY NAME 'SB4249'
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 600 N. Armstrong Place Boise, ID 83704		5. TELEPHONE (include area code) (208) 322-7272 6. FAX (include area code) (208) 322-1436	FOR OFFICIAL USE ONLY PVPO NUMBER 2003 00306 FILING DATE August 14, 2003
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation	8. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware	9. DATE OF INCORPORATION 2/25/75	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Charleen Orthel Syngenta Seeds, Inc. - Vegetables P.O. Box 4188 Boise, ID 83711-4188			FILING AND EXAMINATION FEES: \$ 3652.00 DATE 8/14/2003 CERTIFICATION FEE: \$ 768.00 DATE 1-23-2007
11. TELEPHONE (Include area code) (208) 327-7246	12. FAX (Include area code) (208) 322-1436	13. E-MAIL charleen.orthel@syngenta.com	14. CROP KIND (Common Name) Beans, Garden
15. GENUS AND SPECIES NAME OF CROP Phaseolus vulgaris L.		16. FAMILY NAME (Botanical) Fabaceae	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no", go to item 22) 20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED 21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	

24. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER 	SIGNATURE OF OWNER
NAME (Please print or type) CHARLEEN ORTHEL	NAME (Please print or type)
CAPACITY OR TITLE Inventory Manager	DATE 8/5/03
CAPACITY OR TITLE 	DATE 1

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. **Retain one copy for your files.** All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
- (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
- (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (seed of this variety be sold by variety name only, as a class of certified seed), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

See attached

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed.htm>

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 3.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

ST-470 (02-10-2005) designed by the Plant Variety Protection Office with Word 2000. Replaces former versions of ST-470, which are obsolete.

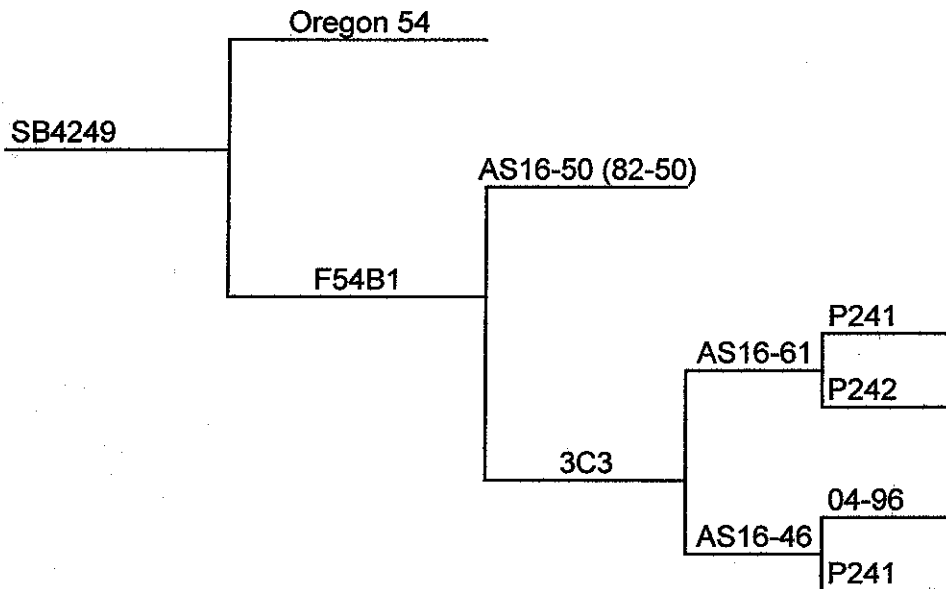
1. Question 22 requires that applicant must supply the date of first sale, disposition, transfer, or use for each country, and the circumstances. Following this instruction, we have listed the first transfer of seed to any 3rd party for each country, whether or not the transfer constituted a sale. In response, Syngenta reported that seed was shipped to Israel. Syngenta Seeds S.A.S. (France) sold SB4249 to an entity in Israel and requested that Syngenta Seeds Inc. drop ship it to Israel. So, in effect, the seed was *not* sold in the US, rather it was sold by Syngenta Seeds S.A.S. and shipped to Israel. Because this was sold by Syngenta Seeds S.A.S., Syngenta Seeds, Inc. does not have information as to the exact terms of the sale to the entity in Israel. According to PVP Act, Section 42.(a)(1)(B) (paraphrased), we understand that this would constitute the date of first sale, disposition or transfer to other persons, for the purposes of exploitation ...in any area outside of the United States.
2. The relationship between Applicant Syngenta Seeds, Inc. (Vegetables NAFTA) and "Syngenta-France", legally known as Syngenta Seeds S.A.S. is: Both legal entities are affiliated entities, under common ownership by Syngenta A.G. in Basel Switzerland. Applicant does not control seed shipped to Syngenta S.A.S. What happens to seed shipped to Syngenta S.A.S. is usually not known to Syngenta Seeds, Inc.
3. The term "Processor Trials Sales" referenced in Syngenta's application refers to the practice of supplying a large sample of seed to a commercial processor for the purpose of test-processing the variety under commercial processing conditions. Such a trial consumes larger quantities of seed than ordinary field trials, and therefore the sample seed is packed on a commercial seed packing line and scale instead of by hand in a small container. A processing variety must be tested in commercial conditions in order to verify that it has the characteristics required. For example, test-processing would include running a variety through a canning line to evaluate whether the variety can stand up to the rigorous canning or freezing process. The term "processor trial sales" referenced in Syngenta's application refers to the shipment of a large quantity of seed for the processor trial and evaluation, not an actual commercial sale. The term 'sales' was a misnomer, and should not have been used. The most important variety characteristics studied in processor trials are 1) harvestability of the variety, and 2) pod color and quality after blanching and freezing.

Exhibit A

2 00300 306

Origin and Breeding History

SB4249



SB4249 originated in 1993 from the hand-pollinated cross of Oregon 54 by 5F54B1. Oregon 54 is a bush blue lake variety from Oregon State University. 5F54B1, AS16-50, 3C3, AS16-61, AS16-46, 04-96, P241 and P242 are all breeding lines owned by Syngenta Seeds. Syngenta purchased these lines from NPI (Native Plants Incorporated) in 1988, along with pedigree records dating back to crosses or increases made or planted in 1982. The pedigree presented here was obtained through careful and intensive review of those records.

Pedigree selection was employed from F2-5 generations. SB4249 was selected for upright bush habit, bush blue lake flavor, smooth pods, and high yield. The F6 generation was bulk harvested to supply a seed source for further seed increases. SB4249 has been uniform and stable for four generations from the original F6 and has been free of off-types and variants.

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The pedigree of SB4249 has been more fully researched. Line 5F54B1 was obtained from NPI in 1988 when the NPI bean breeding program was sold to Syngenta. The pedigree has been researched back to breeding lines produced or used in 1980. Please see a revised Exhibit A, which accompanies this response.

Many hours of research were required to assemble this pedigree. This pedigree constitutes the genealogy of the variety, to the extent known, as is required in the PVP Act, section 52(2).

Selection criteria used in breeding <SB4249> included upright bush habit, blue lake flavor, smooth pods, seed quality and high yield.

Exhibit B**Novelty Statement****'SB4249'**

SB4249 is a Bush Blue Lake type variety suitable for the Oregon processing industry. SB4249 most closely resembles the variety BBL 156.

SB4249 differs statistically from BBL 156 in the following traits.

1. Plant height of 'SB4249' is significantly shorter than 'BBL 156' (47.5 cm vs. 52.6 cm, respectively). See attachments for statistical analysis.
2. Plant spread of 'SB4249' is significantly narrower than 'BBL 156' (39.1 cm vs. 45.4 cm, respectively). See attachments for statistical analysis.

The above values for Plant Height and Plant Spread are the average of the measurements from two years at Nampa, Idaho in 2000 and 2001.

Data for Plant Height and Plant Spread comparisons were collected in Nampa, Idaho during the 2000 and 2001 growing seasons. Twenty plants of each variety were measured for Plant Height and Plant Spread. Each plot was comprised of 100 plants.

Exhibit B
Statement of Distinctness
'SB4249'

Explanation of statistical analysis variables used in the following attachments.

PH2000BBL	= Plant Height (cm), BBL 156, Idaho 2000
PH2000SB4	= Plant Height (cm), SB4249, Idaho 2000
PH2001BBL	= Plant Height (cm), BBL 156, Idaho 2001
PH2001SB4	= Plant Height (cm), SB4249, Idaho 2001
PS2000BBL	= Plant Spread (cm), BBL 156, Idaho 2000
PS2000SB4	= Plant Spread (cm), SB4249, Idaho 2000
PS2001BBL	= Plant Spread (cm), BBL 156, Idaho 2001
PS2001SB4	= Plant Spread (cm), SB4249, Idaho 2001

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STATISTIX FOR WINDOWS

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DESCRIPTIVE STATISTICS

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PH2000BBL	20	51.450	3.6343	44.000	58.000
PH2000SB4	20	47.400	5.1340	37.000	58.000

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Attachment B-1A
Plant Height (cm)
Descriptive Statistics
'BBL156' v.s. 'SB4249'
Nampa, Idaho
2000

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STATISTIX FOR WINDOWS

7/20/03, 7:50:33 PM

ONE-WAY AOV FOR: PH2000BBL PH2000SB4

SOURCE	DF	SS	MS	F	P
BETWEEN	1	164.025	164.025	8.29	0.0065
WITHIN	38	751.750	19.7829		
TOTAL	39	915.775			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	2.17	1	0.1410

COCHRAN'S Q	0.6662
LARGEST VAR / SMALLEST VAR	1.9956

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	7.21211
EFFECTIVE CELL SIZE	20.0

VARIABLE	MEAN	SAMPLE SIZE	GROUP STD DEV
PH2000BBL	51.450	20	3.6343
PH2000SB4	47.400	20	5.1340
TOTAL	49.425	40	4.4478

CASES INCLUDED	40	MISSING CASES	0
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Attachment B-1B
Plant Height (cm)
AOV
'BBL156' v.s. 'SB4249'
Nampa, Idaho
2000

9

200300306

STATISTIX FOR WINDOWS

7/20/03, 7:50:48 PM

LSD (T) COMPARISON OF MEANS

VARIABLE	MEAN	HOMOGENEOUS GROUPS
PH2000BBL	51.450	I
PH2000SB4	47.400	.. I

ALL 2 MEANS ARE SIGNIFICANTLY DIFFERENT FROM ONE ANOTHER.

CRITICAL T VALUE	2.024	REJECTION LEVEL	0.050
CRITICAL VALUE FOR COMPARISON	2.8473		
STANDARD ERROR FOR COMPARISON	1.4065		

10

Attachment B-1C
Plant Height (cm)
Comparison of Means
'BBL156' v.s. 'SB4249'
Nampa, Idaho
2000

2003 00306

STATISTIX FOR WINDOWS

7/20/03, 7:51:13 PM

DESCRIPTIVE STATISTICS

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PH2001BBL	20	53.850	5.3536	40.000	62.000
PH2001SB4	20	47.500	4.5131	37.000	56.000

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STATISTIX FOR WINDOWS

7/20/03, 7:51:38 PM

ONE-WAY AOV FOR: PH2001BBL PH2001SB4

SOURCE	DF	SS	MS	F	P
BETWEEN	1	403.225	403.225	16.45	0.0002
WITHIN	38	931.550	24.5145		
TOTAL	39	1334.77			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	0.54	1	0.4636

COCHRAN'S Q	0.5846
LARGEST VAR / SMALLEST VAR	1.4071

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	18.9355
EFFECTIVE CELL SIZE	20.0

VARIABLE	MEAN	SAMPLE SIZE	GROUP STD DEV
PH2001BBL	53.850	20	5.3536
PH2001SB4	47.500	20	4.5131
TOTAL	50.675	40	4.9512

CASES INCLUDED 40	MISSING CASES 0
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Attachment B-1E
Plant Height (cm)
AOV
'BBL156' v.s. 'SB4249'
Nampa, Idaho
2001

200300306

STATISTIX FOR WINDOWS

7/20/03, 7:51:48 PM

LSD (T) COMPARISON OF MEANS

VARIABLE	MEAN	HOMOGENEOUS GROUPS
PH2001BBL	53.850	I
PH2001SB4	47.500	.. I

ALL 2 MEANS ARE SIGNIFICANTLY DIFFERENT FROM ONE ANOTHER.

CRITICAL T VALUE	2.024	REJECTION LEVEL	0.050
CRITICAL VALUE FOR COMPARISON	3.1696		
STANDARD ERROR FOR COMPARISON	1.5657		

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STATISTIX FOR WINDOWS

7/20/03, 7:52:17 PM

DESCRIPTIVE STATISTICS

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PS2000BBL	20	43.350	5.1939	35.000	56.000
PS2000SB4	20	37.800	6.2205	26.000	50.000

14

Attachment B-2A
Plant Spread (cm)
Descriptive Statistics
'BBL156' v.s. 'SB4249'
Nampa, Idaho
2000

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STATISTIX FOR WINDOWS

7/20/03, 7:52:35 PM

ONE-WAY AOV FOR: PS2000BBL PS2000SB4

SOURCE	DF	SS	MS	F	P
BETWEEN	1	308.025	308.025	9.38	0.0040
WITHIN	38	1247.75	32.8355		
TOTAL	39	1555.78			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	0.60	1	0.4389

COCHRAN'S Q	0.5892
LARGEST VAR / SMALLEST VAR	1.4344

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	13.7595
EFFECTIVE CELL SIZE	20.0

VARIABLE	MEAN	SAMPLE SIZE	GROUP STD DEV
PS2000BBL	43.350	20	5.1939
PS2000SB4	37.800	20	6.2205
TOTAL	40.575	40	5.7302

CASES INCLUDED	40	MISSING CASES	0
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Attachment B-2B
Plant Spread (cm)
AOV
'BBL156' v.s. 'SB4249'
Nampa, Idaho
2000

15

2003 00306

STATISTIX FOR WINDOWS

7/20/03, 7:52:43 PM

LSD (T) COMPARISON OF MEANS

VARIABLE	MEAN	HOMOGENEOUS GROUPS
PS2000BBL	43.350	I
PS2000SB4	37.800	.. I

ALL 2 MEANS ARE SIGNIFICANTLY DIFFERENT FROM ONE ANOTHER.

CRITICAL T VALUE	2.024	REJECTION LEVEL	0.050
CRITICAL VALUE FOR COMPARISON	3.6683		
STANDARD ERROR FOR COMPARISON	1.8121		

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STATISTIX FOR WINDOWS

7/20/03, 7:53:07 PM

DESCRIPTIVE STATISTICS

VARIABLE	N	MEAN	SD	MINIMUM	MAXIMUM
PS2001BBL	20	47.450	7.3160	34.000	57.000
PS2001SB4	20	40.400	5.4231	32.000	50.000

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STATISTIX FOR WINDOWS

7/20/03, 7:53:31 PM

ONE-WAY AOV FOR: PS2001BBL PS2001SB4

SOURCE	DF	SS	MS	F	P
BETWEEN	1	497.025	497.025	11.99	0.0013
WITHIN	38	1575.75	41.4671		
TOTAL	39	2072.77			

	CHI-SQ	DF	P
BARTLETT'S TEST OF EQUAL VARIANCES	1.64	1	0.2010

COCHRAN'S Q	0.6454
LARGEST VAR / SMALLEST VAR	1.8199

COMPONENT OF VARIANCE FOR BETWEEN GROUPS	22.7779
EFFECTIVE CELL SIZE	20.0

VARIABLE	MEAN	SAMPLE SIZE	GROUP STD DEV
PS2001BBL	47.450	20	7.3160
PS2001SB4	40.400	20	5.4231
TOTAL	43.925	40	6.4395

CASES INCLUDED	40	MISSING CASES	0
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Attachment B-2E
Plant Spread (cm)
AOV
'BBL156' v.s. 'SB4249'
Nampa, Idaho
2001

STATISTIX FOR WINDOWS

7/20/03, 7:53:40 PM

LSD (T) COMPARISON OF MEANS

VARIABLE	MEAN	HOMOGENEOUS GROUPS
PS2001BBL	47.450	I
PS2001SB4	40.400	.. I

ALL 2 MEANS ARE SIGNIFICANTLY DIFFERENT FROM ONE ANOTHER.

CRITICAL T VALUE	2.024	REJECTION LEVEL	0.050
CRITICAL VALUE FOR COMPARISON	4.1224		
STANDARD ERROR FOR COMPARISON	2.0363		

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Garden Bean)

OBJECTIVE DESCRIPTION OF VARIETY
GARDEN BEAN (*Phaseolus vulgaris* L.)

NAME OF APPLICANT(S)	FOR OFFICIAL USE ONLY
	FPVO NUMBER 2003 00306
	VARIETY NAME 'SB4249'
	TEMPORARY OR EXPERIMENTAL DESIGNATION 1-25-07

ADDRESS (Street and No. or RD No., City, State, and Zip Code)

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. or) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____

Please answer all questions for your variety; lack of response may delay progress of your application.

TYPE: 1 = Garden 2=Snap 3 = Flageolet 4 = Romano

MARKET MATURITY:

<input type="text" value="5"/> <input type="text" value="5"/>	Days to edible pods	<u>Comparison varieties</u>	
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	Heat units to edible pods - <i>Not measured</i>	1='Tendercrop'	2='Kentucky Wonder'
<input type="text" value="0"/> <input type="text" value="3"/>	Number of days earlier than <input type="text" value="1"/>	3='Goldrush'	4='Slenderette'
 Same number of days as <input type="text" value="3"/>	5='Gitana'	6='Provider'
<input type="text" value="0"/> <input type="text" value="1"/>	Number of days later than <input type="text" value="8"/>	7='Bush Blue Lake 290'	8=Other (specify below)
			8-BBL 156

PLANT:

<input type="text" value="0"/> <input type="text" value="6"/>	cm Spacing between plants in a row	
<input type="text" value="1"/>	Habit	1=Determinate 2=Indeterminate, erect stem and branches 3=Indeterminate with weak and prostrate stem and branches 4=Indeterminate climbing habit with weak, long and twisted stem and branches
<input type="text" value="0"/> <input type="text" value="4"/> <input type="text" value="7"/>	cm Height	<div style="display: flex; align-items: center;"><div style="margin-right: 10px;"><input type="text" value="7"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/></div><div><p>Use <u>Comparison Varieties</u> from Section 2.</p><p>Not the same height as ANY</p><p>Not taller than ANY</p><p>Please make all 3 comparisons for Height and Spread.</p></div></div>
<input type="text" value="0"/> <input type="text" value="7"/>	cm Shorter than	
 Same height as	
<input type="text" value=""/> <input type="text" value=""/>	cm Taller than	

20

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3. PLANT: (continued)

cm Spread

cm Narrower than

..... Same width as

cm Wider than

Pod position 1=Low 2=High 3=Scattered

Bush form (illustrated below)



1=Spherical bush form



2=Stem bush form



3=Wide bush form



4=High bush form

5=Other (SPECIFY) _____

LEAVES:

Surface: 1=Dull 2=Glossy 3=Intermediate

Size: 1=Small ('Gitana') 2=Medium 3=Large ('Tendercrop')

Color: 1=Light green (as light or lighter than 'Goldrush')
2=Medium green
3=Dark green (as dark or darker than 'Bush Blue Lake 290')

ANTHOCYANIN PIGMENT:

1=Absent 2=Present

Flowers

Stems

Pods

Seeds

Leaves

Petioles

Peduncles

Nodes

FLOWER COLOR AND DAYS TO BLOOM:

Color of standard

Color of wings

Color of Keel

Days to 50% bloom

Flower Color Choices

1=White 2=Cream
3=Pink 4=Lilac
5=Purple 6=Blue
7=Other (SPECIFY) _____

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7. PODS: (edible maturity): (continued)

3

Exterior color
(fresh)

- 1=Light green (as light or lighter than 'Provider')
 2=Medium green
 3=Dark green (as dark or darker than 'Bush Blue Lake 290')
 4=Yellow ('Goldrush')
 5=Green-red variegated (horticultural)
 6=Other (SPECIFY) _____

2

Processed pods (exterior color)

1=Light ('Tendercrop')

2=Dark ('Bush Blue Lake 290')

1

Dry pod color

1=Buckskin ('Sprite')

2=Green, persistent chlorophyll ('Hystyle')

3

Cross section pod shape
(middle of the pod)

1=Flat

2=Heart (Pear)

3=Round

4= Figure eight



1

Creaseback

1=Present

2=Absent

2

Pubescence

1=None ('Slenderette')

2=Sparse

3=Considerable ('Provider' or 'Sprite')

2

Constriction (Interlocular cavitation)

1=None

2=Slight

3=Deep

17

mm Spur length

1

Fiber

1=None ('Bush Blue Lake 290')

2=Sparse

3=Considerable ('Sprite')

6

Number of seeds per pod

2

Suture string

1=Present

2=Absent

1

Seed development

1=Slow ('Bush Blue Lake 290')

2=Medium

3=Fast ('Provider')

2

Machine harvest

1=Adapted

2=Not adapted

Percent sieve size distribution at optimum maturity for non-flat pods

1=4.76 to 5.76mm	2=5.76 to 7.34mm	3=7.34 to 8.34mm	4=8.34 to 9.53mm	5=9.53 to 10.72mm	6 ≥ 10.72mm
%	%	10 %	31 %	41 %	18 %

3 Sieve

11

cm length

76

mm width

76

mm thickness

4 Sieve

13

cm length

92

mm width

92

mm thickness

5 Sieve

14

cm length

98

mm width

95

mm thickness

6 Sieve

cm length

mm width

mm thickness

SEED COLOR:

3

Seedcoat luster

1=Shiny

2=Dull

3=Semishiny

4=Variable

1

Seedcoat

1=Monochrome

2=Polychrome

01

Primary color

1=White 2=Yellow 3=Buff 4=Tan 5=Brown 6=Pink 7=Red 8=Purple
 9=Blue 10=Black 11=Other (SPECIFY) _____

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8. SEED COLOR: (continued)

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☐ ☐ Secondary color 1=White 2=Yellow 3=Buff 4=Tan 5=Brown 6=Pink 7=Red 8=Purple
9=Blue 10=Black 11=Other (SPECIFY) _____


☐ 1 Seedcoat pattern 1=Solid 2=Splashed 3=Mottled 4=Striped 5=Flecked 6=Dotted

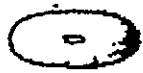
☐ 2 Hilal ring 1=Absent 2=Present


☐ 02 Hilal Ring Color 1=White 2=Yellow 3=Buff 4=Tan 5=Brown 6=Pink 7=Red 8=Purple
9=Blue 10=Black 11=Other (SPECIFY) _____

9. SEED SHAPE AND SIZE:

☐ 1 Hilum view

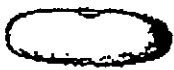
 1=Elliptical


 2=Oval


 3=Round

☐ 4 Cross section 1=Elliptical 2=Oval 3=Cordate 4=Round

☐ 3 Side view

 1=Oval to Oblong

 2=Round

 3=Reniform

☐ 26 gm/100 Seed

☐ 13 gm/100 Seed lighter than ☐ 1

gm/100 Seed same as ☐ -

☐ 05 gm/100 Seed heavier than ☐ 5

Use Comparison Varieties from Section 2.
NOT THE SAME AS ANY.
Please make all 3 comparisons.

10. DISEASE RESISTANCE: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant
PLEASE SPECIFY RACE OR STRAIN WHERE APPROPRIATE

☐ Anthracnose (*Colletotrichum lindemuthianum*)

☐ Race Alpha ☐ Race Beta ☐ Race Gamma

☐ Race Delta ☐ Race Epsilon ☐ Race Lambda

☐ Race Kappa ☐ specify race _____

☐ Bean Rust (*Uromyces appendiculatus*)

☐ Race 38 ☐ Race 39 ☐ Race 40 ☐ Race 44

☐ Race 45 ☐ Race 46 ☐ Race 49 ☐ Race 50

☐ Race 51 ☐ Race 52 ☐ Race 54 ☐ Race 56

☐ Race 59 ☐ specify race _____

☐ Powdery Mildew (*Erysiphe polygoni*) _____

☐ Fusarium Root Rot (*Fusarium solani* f. sp. *phaseoli*) _____

☐ Pythium Root Rot (*Pythium* spp.) _____

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10. DISEASE RESISTANCE: (continued)

☒Rhizoctonia Root Rot (*Rhizoctonia solani*)☒Pythium Blight or Aerial Pythium (*Pythium ultimum*)☒Angular Leaf Spot (*Isariopsis griseola*)☒Bacterial Wilt (*Corynebacterium flaccumfaciens* subsp. *flaccumfaciens*)☒Bacterial Brown Spot (*Pseudomonas syringae* pv. *syringae*)☒Common Bacterial Blight (*Xanthomonas campestris* pv. *phaseoli*)☒Halo blight (*Pseudomonas syringae* pv. *phaseolicola*)☐

Race 1

☐

Race 2

☐

Other (SPECIFY)

☒

Clover Yellow Vein Virus (CYVV)

☒

Bean Common Mosaic Virus (BCMV)

☒

BV1

☒

NY15

☐

NL2

☐

NL3

☐

NL4

☐

NL8

☐

Florida

☐

Idaho

☐

Mexican

☐

Western

☐

Type

☒

Other (SPECIFY) Dominant I gene

☐

Yellow Bean Mosaic Virus (BYMV)

☐

Curly Top Virus (BCTV)

☐

Other (Specify Disease and Race or Strain)

1. INSECT RESISTANCE: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant

☐

Aphid

☐

Root Knot Nematode

☐

Leafhopper

☐

Seed Corn Maggot

☐

Lygus

☐

Thrips

☐

Pod Borer

☐

Weevils

☐

Other (SPECIFY)

PHYSIOLOGICAL RESISTANCE: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant

☐

Heat

☐

Cold

☐

Drought

☐

Air Pollution

☐

Ozone

☐

Other (SPECIFY)

COMMENTS:

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STATEMENT OF THE BASIS OF APPLICATION OWNERSHIP

The variety, SB4249, is the result of a hand-pollinated cross of Oregon 54 x 5F54B1. Dr. Ron Riley, an employee of Syngenta Seeds, Inc. – Vegetables, developed the variety, SB4249, for which Plant Variety Protection is hereby being sought. By agreement between the employees and Syngenta Seeds, Inc.- Vegetables, all rights to any invention, discovery or development made by the employee while employed by Syngenta Seeds, Inc. – Vegetables are assigned to Syngenta Seed, Inc. – Vegetables with no rights of any kind retained by the employees.